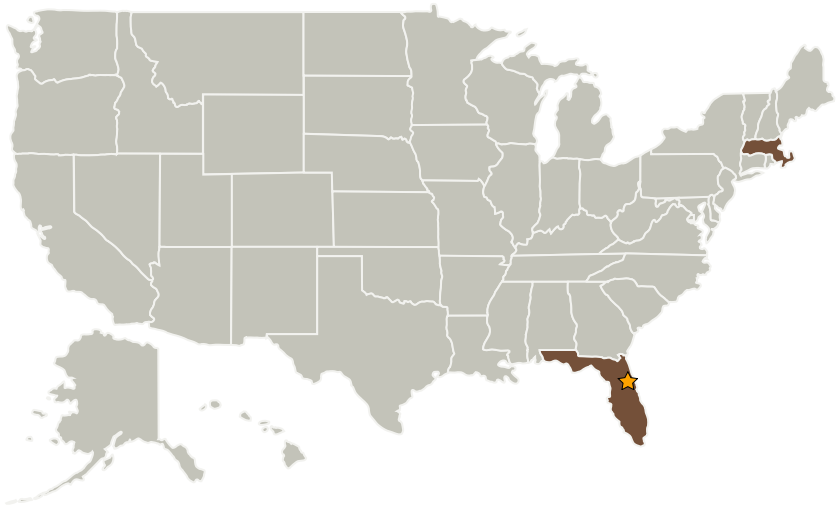
High Transparent Metal Oxide / Polyimide Antistatic Coatings, Phase I

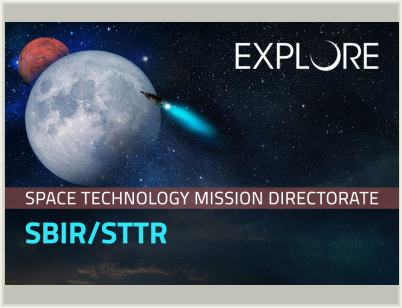
Completed Technology Project (2005 - 2005)

Project Introduction

NASA requires clear antistatic coatings that can withstand exposure to the rigors of the space environment. Agiltron proposes a coating consisting of inorganic conducting particles and space environment resistant polymer that shares the best features of inorganics and organics currently available. Such a coating could potentially be processed by common polymeric routes yet have the optical/electrical performance advantages of inorganic materials. The electric resistance of the coating can be easily adjusted by changing the composition and concentration of the inorganic conducting particles for a resistance required for antistatic applications (106-1010 ohm/sq). This new material system would overcome traditional drawbacks, such as the light scattering due to the aggregation of the inorganic particles, providing the high transparency and desired conductivity for many applications. Elimination of light scattering is achieved by dispersing transparent conducting particles into an optically matched polymer matrix. Moreover, the transparent and conducting particles are designed to chemically bond to the engineered polymer composite for excellent stability and reliability that are required in space environment applications. The process of applying this type of transparent antistatic film is as simple as applying paint, which would allow the application of these coatings to flexible and rigid materials suggesting potential even in very cost-sensitive applications.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
AGILTRON Corporation	Supporting Organization	Industry	Woburn, Massachusetts

Primary U.S. Work Locations	
Florida	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Jack Salerno

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.1 Materials
    - TX12.1.6 Materials for Electrical Power Generation, Energy Storage, Power Distribution and Electrical Machines